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*Experimental Psychology and its Bearing upon Culture*, by GEORGE MALCOLM STRATTON. The Macmillan Company, N. Y., 1903. pp. vi+331.

The author has undertaken to state the standpoint of the New Psychology, to pass in review some of the chief results already attained by it, and to assess the value of those results for culture and life. This general problem determines the subject matter treated. There is first an historical introduction; a second chapter deals with the general character of the psychological experiment; a third with the possibility of mental measurement; two with unconscious ideas; one with illusions; two with space perception; two with memory; one with imitation and suggestion. The remaining chapters indicate the application of the results of psychology to culture. There are two on æsthetics (the enjoyment of sensations and their forms; the color and differentiation of the Fine Arts), and two on the philosophical and ethical bearings of the new science. These discuss the connection of mind and body and the spiritual implications of experimental work.

The historical introduction begins with Aristotle and ends with Wundt. English empiricism, Berkeley's work in vision, the evidence of surgery in the removal of cataracts, Goethe's experiments with colored glass, the personal equation of the astronomers, Helmholtz' work in optics and sound, and the phrenologists Gall and Spurzheim are all shown to have had more or less influence upon the development of the New Psychology. The immediate ancestry of the science is, however, traced to Weber, Fechner and Wundt. Of Weber it is said (p. 10) that he not only aroused interest in his results, but also made men recognize the experimental method as a mode of procedure in psychology. This statement attributes to Weber much more than is his just due. Weber was first and last a physiologist; his work on the sensitivity of the skin and on the sensible discrimination of weights is wholly physiological in character. His theory of sensation circles (a purely physiological conception) and the absence of any psychological insight in the *Tastsinn und Gemeingefühl* are sufficient evidence for this statement. Of Fechner it is said, that he tested Weber's Law by many thousands of experiments in lifting weights; on the basis of these results, he cast Weber's Law into a mathematical formula. And, further, having satisfied his mathematical impulses, he fell to developing the philosophical implications of his formulæ (p. 12). This certainly, is an unwarranted misrepresentation of Fechner's service to experimental psychology. His place as one of the founders of the science rests upon psychological work of the first order, quite independent of psychophysics; for example his work on after-images. Even James, who has little love for psychophysics, admits that Fechner had great psychological insight. And, furthermore, Fechner's philosophical system was already developed long before he began his work on psychophysics. The *Elemente*, as a matter of fact, was undertaken to prove his philosophical theory, and not conversely.

The treatment of mental measurement is curious. It begins by showing that some mental processes can be measured. Thus, one is able to measure reaction times. One is also able to determine the amount of contrast induced by a complementary color. But the issue is again raised whether, in the instances cited, any mental process is measured. The question is further considered, in a discussion of four kinds of psychical quantity: these are intensity, temporal and spatial quantity, and simple enumeration. (i) *The quantity of intensity*. The objection so often made to Fechner's conception of intensive magnitudes, that no sensation intensity is made up of smaller intensities, is met by the reply that although an experience is indivisible it

may be none the less quantitative. Although the author seems to think that this reply meets the objection, he is inclined to believe that even if intensity should fail, there is still hope for mental measurement in the other quantities. (ii) *Spatial quantity*. The argument in this case is, that space is not a universal form of mental process; but that the object which we have in mind may be spatial, without the higher mental processes sharing in this property. As an example of this sort of 'non-physical' spatial quantity, is cited the degree of divergence produced in two parallel lines by cross-hatching. (iii) The psychologist has good grounds for assuming *temporal quantity* within his own field. (iv) The quantity of *simple enumeration* depends upon the proposition that wherever any real differences exist, the notion of quantity and number also exists. In this sense, quantity is as much a mental attribute as a physical one. From this discussion, the author concludes that "mental phenomena are quantitative." This treatment is unusual, in that it wholly disregards the development of the concept of mental measurement, in the hands of Fechner, Delbœuf, Müller, Stumpf, Wundt and Ebbinghaus.

The chapters on illusions, space perception and memory ought to do great good, not only in the way of popularizing the results of psychological investigation, but also as proof of the efficiency of the science itself. And the chapters on imitation and suggestion should be of value, as an antidote to popular superstition regarding hypnotism and spiritualism.

There are minor slips. Thus, the statement (p. 9) that Vierordt made a study of the time sense more than half a century ago, is not true; the work was published in 1868. Taken as a whole, however, the book is a serious piece of work. It should do much to remove misconceptions, and to give a proper understanding of the standpoint and results of experimental psychology.

H. C. STEVENS.

*Sprachgeschichte und Sprachpsychologie*, von W. WUNDT. Leipzig, W. Engelmann, 1902. pp. 110. Price Mk. 2.

This work is primarily a reply to B. Delbrück's criticism of the *Völkerpsychologie* in his *Grundfragen der Sprachforschung*, 1901. It contains supplementary essays on gesture language, phonetic change, the fundamental questions of syntax and the origin of language. Especially interesting is the introductory chapter, which differentiates the Herbartian psychology, with its application of psychological norms to language, from modern psychology, which derives psychological laws from language. Interesting, too, is the proof of survival influences of the older classical philology and of romanticism upon the current science of language. The work as a whole forms a valuable addition to the discussions of the *Völkerpsychologie*.

*Le mensonge: étude de psycho-physiologie pathologique et normale*, par G. L. DUPRAT. Paris, F. Alcan, 1903. pp. 190. Price fr. 2.50.

M. Duprat is already well known as a writer on mental pathology, as the author of an *Éthics* which has recently been translated into English, and as the translator of Baldwin's *Social and Moral Interpretations*. His present work is based upon returns to a questionnaire regarding children's lies, but refers also to lying as it is found in uncivilized peoples, and among civilized adults, normal and abnormal. He concludes that lying is dependent upon tendencies which have their roots in character, in affective disposition, in physiological constitution and in neuro-muscular diathesis. His remedy is the instillation of "true ideas and generous sentiments," and the development of a critical sense, by scientific education.